



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR  | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|-----------------------|---------------------|------------------|
| 10/550,213   | 10/05/2006  | Joseph P. Kennedy Jr. | GRA26 020           | 1674             |
| 79172  | 7590        | 08/19/2008            | EXAMINER            |                  |
| Duane Morris LLP<br>505 9th Street, N.W.<br>Suite 1000<br>Washington, DC 20004 |             |                       | PEREZ, ANGELICA     |                  |
|  |             |                       | ART UNIT            | PAPER NUMBER     |
|  |             |                       | 2618                |                  |
|  |             |                       | MAIL DATE           | DELIVERY MODE    |
|  |             |                       | 08/19/2008          | PAPER            |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/550,213

**Applicant(s)**

KENNEDY JR., JOSEPH P.

**Examiner**

Perez M. Angelica

**Art Unit**

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 October 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,6-19 and 23-30 is/are rejected.  
7) ☒ Claim(s) 2-5 and 20-22 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 06 October 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/SB/808)  
Paper No(s)/Mail Date 12/7/2005  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. Claims 1, 8, 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 8 and 19 recite the limitation "the mobile appliance" in lines 5, 10; 3 and 8, respectively. There is insufficient antecedent basis for this limitation in the claim.
2. Claims 1, 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "received directly" is unclear.

It is not clear as to what the sentence "determining which transmitters are received by the mobile appliance" refers to, since the sentence does not make sense technically speaking. Receiving a transmitter means to physically receive the transmitter, perhaps to it to be installed in the "mobile appliance"? The examiner believes that the applicant intended to describe transmitted signals, signals transmitted from a transmitter or the like.

Claims 23-25 are not clear, does the applicant mean "more than one factor"? since, "one or more factors" makes the claim unclear?

### ***Claim Objections***

3. Claim 5 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 2-4 are intervening claims for claim 5 and claims 20-21 are intervening claims for claim 19.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 17 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Durrant et al. (Durrant, US 6501955 B1).

Regarding claim 17, Durrant teaches of a network overlay geo-location system for locating a mobile appliance in a host wireless communication system where the host wireless communication system has a plurality of base stations and one or more repeater stations (figures 1 and 5), a method of determining whether a signal transmitted by a mobile appliance is received at one of the base stations directly or via the one or more repeater stations (Column 4, lines 61-66), comprising: determining

Art Unit: 2618

the approximate distance between the base station and the mobile appliance based on the TA of the mobile appliances transmitted signal (column 6, lines 45-64), determining a touch stone equivalent distance, comparing the equivalent distance with the approximate distance (Column 4, lines 61-66) and, determining if the signal is received directly or through a repeater based in part on the comparison (Column 4, lines 61-66, where the TA will be different for the MS and repeater).

18. The method of Claim 17, where the equivalent touch stone distance comprises the propagation distance between the repeater and the base station, the repeater delay and the timing advance resolution (columns 6 and 8, lines 45-67 and 59-60, respectively, where one of the "other control information" corresponds to repeater delay/offset).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 6-7, 19 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Durrant in view of Baker et al. (Baker, US 2003/0220075 A1) and further in view of Kuwahara et al. (Kuwahara, US 2003/0162550 A1).

Regarding claims 1 and 19, Durrant teaches of a wireless communication system having at least one repeater and a geolocation system for determining the location of a mobile by measuring an attribute of the mobile's uplink signal (figures 1 and 5,

repeater 20, location measurement unit 100, and where the TOA provides information regarding the mobile's uplink signal), a method of determining if the uplink signal is received directly or via the at least one repeater (Column 4, lines 61-66), comprising: estimating the location of the mobile appliance by the geolocation system (column 9, lines 40-47); determining an accuracy of the estimate (column 2, lines 30-37, where given a broad interpretation, the accuracy of the estimate can be as accurate as the calibration of the elements in the system. In addition, if the estimate is good enough for location related to a 911 emergency, it is accurate enough); determining if a Timing Advance (TA) of the uplink signal can be associated with the Equivalent Propagation Distance (EPD) of the at least one repeater (column 6, lines 45-64, where the BS determines and commands the TA to the repeater, therefore, the EPD is associated with the determined repeater, e.g., "mobile equivalent"); determining which receivers have received the uplink signal (where given a broad interpretation, since it is not known who is doing the determination; therefore, the BS, LMU, repeater repeaters determine themselves when they receive the uplink signal. See entire reference, anywhere where any of the elements is receiving a signal), determining which transmitters are received by the mobile appliance (columns 10 and 11, lines 65-67 and 1-3, respectively, where the examiner is giving a broad interpretation. In addition, it is well known in the art where BSs transmit their specific signaling code that identifies each one of them, thus, the MS know what BS transmitted signals received).

Durrant does not specifically teach of determining the relationship between the power of the received signals and the power at which the mobile transmitted the uplink

signal; of determining at least one figure of merit based on the accuracy of the estimate, the TA of the uplink signal, the equivalent propagation distance, the receivers receiving the uplink signal, the transmitters received by the mobile appliance, the power of the received signal and the power at which the mobile transmitted the uplink signal (column 6, lines 45-67, where the TA can be the one received directly from the MS or from the receiver, since the signals received by the BS from both devices are considered uplink signals).

In related art concerning a method and system for identifying and monitoring repeater traffic in a code division multiple access system, Baker teaches of determining the relationship between the power of the received signals and the power at which the mobile transmitted the uplink signal (paragraphs 75-76, where the BS knows the power at which the MS transmitted, since it commanded it to the MS and where the BS measures the received power and compares it to the commanded power. In addition, the transmitted power and the received power should be fairly constant a big discrepancy/oscillation can be the indication that a repeater is transmitting the power instead of the MS).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Baker's power comparisons with Durrant's method in order to determine if the power was transmitted by a MS or a repeater.

Durrant and Baker do not specifically teach of comparing the at least one figure of merit to at least one or more threshold values to determine whether the uplink signal is received directly or from the at least one repeater.

In related art concerning a wireless communication apparatus, Kuwahara teaches of comparing the at least one figure of merit to at least one or more threshold values to determine whether the uplink signal is received directly or from the at least one repeater (paragraphs 52, where the calculation and comparisons can be done at the BS or MS as known in the art).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kuwahara's comparison of the figure of merit to a threshold with Durrant's and Baker's combined method to determine whether the signal is received directly or from the at least one repeater.

Regarding claim 6, Durrant, Baker and Kuwahara teach all the limitations of claim 1. Kuwahara further teaches of selecting the location of the repeater if the uplink signal is determined to be from the repeater as the location of the mobile (paragraph 13).

Regarding claim 7, Durrant, Baker and Kuwahara teach all the limitations of claim 1. Durrant further teaches of selecting the estimate of the location if the uplink signal is determined to be directly from the mobile as the location of the mobile (columns 7 and 9, lines 36-40 and 37-56, respectively; where when there is no repeater tag, the signals are received directly from the MS).

Regarding claim 23, Durrant, Baker and Kuwahara teach all the limitations of claim 19. Baker further teaches where the step of determining one or more factors includes selecting two or more factors (paragraph 35).

Regarding claim 24, Durrant, Baker and Kuwahara teach all the limitations of

claim 19. Baker further teaches where the step of determining one or more factors includes selecting three or more factors (paragraph 35).

Regarding claim 25, Durrant, Baker and Kuwahara teach all the limitations of claim 19. Baker further teaches where the step of determining one or more factors includes selecting all of the factors (paragraph 35, where the entire factor can comprise only one factor).

Regarding claim 26, Durrant, Baker and Kuwahara teach all the limitations of claim 19. Durrant further teaches of determining an estimated location of the mobile using a geolocation system (column 9, lines 40-47), determining the accuracy of the estimated location (column 2, lines 30-37, where given a broad interpretation, the accuracy of the estimate can be as accurate as the calibration of the elements in the system. In addition, if the estimate is good enough for location related to a 911 emergency, it is accurate enough) and determining whether the uplink signal is received directly or from the at least one repeater at least in part by the accuracy of the estimated location (Column 4, lines 61-66).

8. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker in view of Kuwahara.

Regarding claim 8, Baker teaches where in a wireless communication system having one or more repeaters and a geolocation system which determines the location of a mobile (figure 1, item 120; paragraph 26) by measuring an attribute of the mobile appliance's received uplink signal (paragraph 26, lines 11-17), a method of determining if the uplink signal is received directly or via one of the one or more

repeaters comprising (paragraph 26, lines 17-20).

Kuwahara further teaches of determining a timing advance of the received uplink signal and comparing the timing advance with a known equivalent propagation distance associated with each of the one or more repeaters and determining whether the uplink signal is received directly or via one of the one or more repeaters based on the comparison (paragraph 52).

Regarding claim 9, Baker and Kuwahara teach all the limitations of claim 8. Baker further teaches where the equivalent propagation distance is a function of the distance between the one or more repeaters and a receiver, the delay of the one or more repeaters and a timing advance resolution (paragraphs 29 and 42).

Regarding claim 10, Baker and Kuwahara teach all the limitations of claim 9. Baker further teaches where the delays of the repeaters are fixed (paragraph 38, where if the repeaters are fixed or mobile, the delay will be fixed or variable (selectable)).

Regarding claim 11, Baker and Kuwahara teach all the limitations of claim 9. Baker further teaches where the delay of the repeaters is selectable (paragraph 38, where if the repeaters are fixed or mobile, the delay will be fixed or variable (selectable)).

9. Claims 12-16 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Durrant in view of Kuwahara.

Regarding claim 12, Durrant teaches of a wireless communication system having one or more repeaters and a geolocation system which determines the location of a

mobile by measuring an attribute of the mobile appliance's uplink signal (figures 1 and 5, repeater 20, location measurement unit 100, and where the TOA provides information regarding the mobile's uplink signal), a method of determining if the uplink signal is received directly or via one of the one or more repeaters (Column 4, lines 61-66) comprising: a timing advance of the transmitted uplink signal (column 6, lines 45-64).

Kuwahara teaches of a hearability of the transmitted uplink signal (paragraph 74, where the neighboring BSs ); and known locations (paragraph 13) and delays of the one or more repeaters (paragraphs 48 and 52); determining the probability for each of two hypothesis and choosing the hypothesis with the greatest probability, where the probabilities for each of the two hypothesis (paragraph 7, where when a large delay presents a large probability of the transmitter being a repeater).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kuwahara's higher probability comparison with Durrant's and method in order to determine if the signals are being transmitted directly form a transmitter of the MS or indirectly through a repeater.

Regarding claim 13, Durrant and Kuwahara teach all the limitations of claim 12. Kuwahara further teaches where the probabilities for each of the two hypotheses are determined at least in part by one or more factors chosen from the group comprising, the TA parameter of the uplink signal transmitted by the mobile appliance; the number of receivers receiving the uplink signal; the power level of the transmitting mobile appliance and the power level of the received uplink signal; the estimated location of

the mobile appliance from the geolocation system; the mobiles reception of neighboring cells; and, the locations and applied delays for the one or more repeaters (paragraphs 48 and 52; e.g., delays of the repeaters).

Regarding claim 14, Durrant and Kuwahara teach all the limitations of claim 12. Durrant further teaches where the uplink signal being received directly from the mobile appliance is one of the two hypotheses (Column 4, lines 61-66).

1 Regarding claim 15, Durrant and Kuwahara teach all the limitations of claim 12. where the uplink signal being received from the one or more repeaters is one of the two hypotheses (Column 4, lines 61-66).

Regarding claim 16, Durrant and Kuwahara teach all the limitations of claim 12. determining the probability comprises at least in part characterizing the reception of the mobile appliance's uplink signal throughout the wireless communication system (figures 1 and 5, repeater 20, location measurement unit 100, and where the TOA provides information regarding the mobile's uplink signal).

Regarding claim 27, Durrat teaches where in a wireless communication system having at least one repeater (figure 1, item 120), a method of determining if an uplink signal from a mobile is not operated on by the at least one repeater comprising (columns 3 and 4, lines 1-6 and 30-35, respectively): retrieving a timing advance value of the uplink signal 9column 6, lines 45-67); comparing the timing advance value to a known equivalent propagation distance of the at least one repeater (columns 9 and 10, lines 66-67 and 1-11, respectively).

Kuwahara further teaches of determining if the uplink signal is not received from

the at least one repeater based on the comparison (paragraph 52, lines 26-31).

Regarding claim 28, Durrat and Kuwahara teach all the limitations of claim 27.

Kuwahara further teaches where the known equivalent propagation distance is a function of the distance between the at least one repeater and a receiver and the time delay associated with the at least one repeater function (paragraph 52, lines 10-26).

Regarding claim 29, Durrat and Kuwahara teach all the limitations of claim 28.

Durrat further teaches where the comparison is at least in parts a function of the resolution of the TA (column 6, lines 50-57).

Regarding claim 30, Durrat and Kuwahara teach all the limitations of claim 28. Durrat further teaches where the radius of the are area served by the at least one repeater is much less than the distance between the at least one repeater and the receiver (figure 1, where "the radius of the area served by the at least one repeater is much less than the distance between the at least one repeater and the receiver").as that the signal comes from a

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angelica Perez whose telephone number is 571-272-7885. The examiner can normally be reached on 6:00 a.m. - 2:30 p.m., Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571) 272-4177. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either the PAIR or Public PAIR. Status information for unpublished applications is available through the Private PAIR only. For more information about the pair system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). Information regarding Patent Application Information Retrieval (PAIR) system can be found at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600's customer service number is 703-306-0377.

Art Unit: 2618

/P. M. A./

Examiner, Art Unit 2618

August 5, 2008

/Matthew D. Anderson/

Supervisory Patent Examiner, Art Unit 2618